

Title Comparing the efficiency of chitosan with chlorine for reducing *Vibrio parahaemolyticus* in shrimp

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Abstract

Thailand is one of the leading exporters of frozen shrimp to many countries. Chlorine is the decontaminating agent most frequently used in the frozen shrimp industries to kill potential pathogens. However, long time contact to chlorine causes severe respiratory tract damage. In this study, chitosan was compared to chlorine for reducing *Vibrio parahaemolyticus*. *In vitro* investigation, chitosan could reduce more than 90% of *V. parahaemolyticus*, whereas chlorine completely eliminated this organism. In artificially inoculated shrimp, more than 90% reduction of *V. parahaemolyticus* was achieved by chitosan. A similar reduction was obtained by chlorine, however, at lower concentrations and less contact time. In naturally contaminated shrimp, neither agent completely eradicated *V. parahaemolyticus*, however, chitosan achieved a decrease of more than 60%. These results demonstrate the possibility of using chitosan to decontaminate pathogenic bacteria in the seafood factory, a change that would diminish health problems of the workers.